

BAILY (A.W.)



IS OUR PRESENT HIGH RATE OF INFANTILE  
MORTALITY A NECESSITY? IF NOT,  
HOW CAN IT BE REDUCED?

BY

A. W. BAILY, M. D.,

ATLANTIC CITY, N. J.

[Read before the West Jersey Homœopathic Medical Society, May 21st, 1890.]



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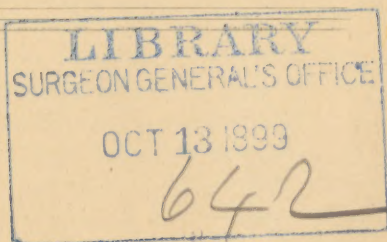
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Nature sends but few children into this world to die in infancy. The economy of nature knows no lavishness at the expense of human life; she is lavish in her efforts to produce life and to support and promote it, but here her extravagance ends. She has no children to wantonly sacrifice, she recognizes no over-production, nor by death does she strive to keep down the population. Infantile mortality as it now stands upon our records is due to some other cause than the decree of nature.

I have collected and tabled the deaths for the year 1889 of the cities of Hartford, New York, Newark, Baltimore, St. Louis, Minneapolis, San Francisco and Atlantic City, and the result shows that 43.7 per cent. of all deaths occur under the age of five years. The records are far from being complete, and he who would make a careful study of the cause of infantile mortality, not simply the cause of death as appended to the certificate, but the true primary cause, finds many tangled webs to unweave. We learn by careful investigation that alimentary diseases carry off 34 per cent. of all infants that die, diseases of the respiratory tract 17.1 per cent., diseases of the nervous system 18.1 per cent., contagious diseases 13.8 per cent., constitutional disorders 6.7 per cent., still born and premature births, 5 per cent., miscellaneous diseases 5.3 per cent. By this showing we discover that 43 out of every hundred infants that are born, die before they reach the age of five years. This is an immense loss of life, and we naturally ask, is it necessary?

Five per cent. of these forty-three are either born dead or die from premature birth, and six per cent. are born with some constitutional disorder that carries them off before they reach the end of the fifth year. This, then, leaves us thirty-nine healthy infants in every hundred that are born, who have as

much right to live as the other fifty-seven healthy ones, but they die. Why do they not live and mature?

In order to answer this question we must investigate more closely the causes of death. To help us we have divided these causes into seven classes, namely: <sup>(1)</sup> premature and still births; <sup>(2)</sup> constitutional disorders; <sup>(3)</sup> contagious diseases; <sup>(4)</sup> diseases of the alimentary and <sup>(5)</sup> respiratory tracts; <sup>(6)</sup> of the nervous system; and <sup>(7)</sup> miscellaneous. This division is more or less arbitrary, as the cause of death may be secondary to a disease in another class, as convulsions from stomach or intestinal irritation, or capillary bronchitis from measles or whooping cough. But with the lax manner in which our records are kept these difficulties cannot be well overcome.

Premature and still birth are responsible for the death of five out of every hundred children born. With those who are still born the physician has little to do but to certify to the fact and pass them over to the care of the undertaker. Premature birth may demand a little more attention, for cannot at least a small per centage of these births be prevented, and the mother, by proper care and instruction caused to go to full term? The experience of every physician will answer in the affirmative.

Constitutional disorders are accountable for seven deaths out of every hundred. Under this head are classed all diseases of a tubercular diathesis, malformations, cancer, and congenital syphilis. This seems like a high rate, but if the truth were fully told there is no doubt but that the rate would be still higher, for we find that very few deaths are recorded as due to congenital syphilis, due no doubt to the desire of the physician to spare the feelings of the parents. Of all the reports before me only two note any deaths from congenital syphilis, one tables 5, the other 6. But it seems as if something should be done to reduce the rate, for one out of fourteen is too high. Whether those who are suffering from tubercular or syphilitic disorders should have progeny on whom to inflict their diseases is a vital question of social economy, and

about which much has been said and written. I believe that they should not have offspring.

Contagious diseases kill fourteen out of every hundred that die. In this class are included diphtheria, scarlet fever, measles, small-pox and whooping cough. These are essentially diseases of childhood and we find a high mortality under this head as compared with the rate in adult life from the same causes. They are due to a morbid essence conveyed from one person to another, hence isolation is practiced as the great preventive. I find, on investigation, that Atlantic City has a rate of only a fraction above one-fourth that of the general rate. Now this is remarkable from the fact that we have continually coming to us children who have been exposed to one or another of these diseases in their own homes, and are brought here for protection, and, no doubt, bring with them the diseased germs, but the disease does not spread, and only now and then we have a few cases, and these usually of a mild character. For this there must be a reason; the difference between 14 per cent. and 3.6 per cent. is too great to be simply accidental. Our city is much the same as all cities, we have the rich and the poor, those who are careful about hygienic surroundings and those who are careless, and our unusually low death rate can be due to only two causes,—first we have an abundant supply of pure air, which, whether one will or no, permeates everything; and secondly, the peculiar quality of salt air prevents decomposition to a great extent, and thus morbid germs do not find a suitable soil in which to develop. There is a lesson in preventive medicine to be learned from this. Escape from the presence of the disease by going to some locality where the air is pure, but when this is not practicable, admit fresh air, the best that can be secured, and abundance of it, into the home of the patient. I am of the impression that we as physicians do not teach hygiene to our patients as we should, we do not make them understand how to take care of themselves and prevent sickness. It is not enough that works on hygiene are published for the public, how many of our families possess a copy, or if they have, pay any attention to its teachings. In this matter of contagious

disease as it relates to infantile mortality we are too lax, and many a little one has been sacrificed because good fresh air has been thoughtlessly denied. It is unnecessary to call attention to the importance of removing filth and careful investigation of sewer connections; for these are matters of every day discussion. But the infant and adult are not treated alike regarding fresh air. The one is kept in the house shielded from the outside air, especially if it be a little cool, while the youth or adult goes out freely and secures fresh air in abundance. Why should not the infant have the same privilege? Why should it not have the same chances of life? Why should the nursery be kept at a temperature that will be uncomfortable for a healthy adult? Often contagious diseases are spread in just this manner, for in such an atmosphere they will develop quickly. These parents need to be taught common sense, and need to learn that fresh air is the best antidote for morbid germs. Among the poorer classes perhaps even more work needs to be done. In addition to the necessity for fresh air they must learn the absolute necessity of cleanliness. On us, then, as physicians devolves the duty of educating these people who come under our care.

The same things can be said in almost the same words regarding fresh air in diseases of the respiratory tract. These include capillary bronchitis, pneumonia, congestion of the lungs and croup, and carry off every year 17 per cent. of all the infants that die. This living in a contaminated atmosphere, or too hot or too dry an atmosphere lays the foundation for future trouble. The mucous membrane is kept in an irritable condition, nerve force is depleted and some unavoidable or accidental exposure or sudden change in the atmosphere results disastrously. I do not believe in reckless exposure, neither do I any more believe in the other extreme; either is equally pernicious. But there is a happy medium which comes into the lives of too few infants, that would result in greatly pulling down the mortality from respiratory disorders.

But the greatest factor in infantile mortality is diseases of the alimentary tract, including all diarrhoeal disorders, marasmus,

inanutition, indigestion, etc. These disturbances of the natural processes result in the death of a little more than one-third of all infants that die; exactly twice as fatal as diseases of the respiratory tract. To my mind there is no legitimate reason for this. It cannot be that more infants are born physically weaker in the one direction, than in the other. The cause must be looked for in some influence outside of the infant, therefore it may properly be classed as preventive. Among these disorders cholera infantum stands at the head. No doubt many deaths are recorded as due to this trouble when a more correct diagnosis would place them under ilio-colitis, entero-colitis, diarrhœa, etc., but we must take the records as we find them. Heat seems to be the great predisposing cause of all these disorders where diarrhœa is a pronounced symptom; but there are other causes as rife and perhaps more sure in their effects, and first of all I would place diet. A sudden change of diet; spoiled food, as sour milk, unripe fruit or vegetables, or indigestible food may bring on trouble; but more frequently a condition of the stomach and bowels has been ingendered by long and persistent improper feeding which only requires some little cause as a suddenly hot day, a bottle of sour milk or protrusion of a tooth, to produce a stubborn, and perhaps fatal diarrhœa. Diet, then, is one of the greatest questions the physician must solve. What food shall baby eat, and how shall it be given? The old monthly nurse knows all about it, and too often the question of diet is left for her to settle for the first week or ten days till baby is taken with looseness of the bowels and the doctor's advice is sought. It is beyond question that the food nature supplies for the infant, when good, is far superior to all else, and when the mother has a good full breast of milk the question of what the food shall be is easily settled. But how shall it be given? A good food may become injurious from being given in an improper manner. Milk, as a rule, is not secreted by the mother till forty-eight or seventy-two hours after delivery, but there is secreted a watery fluid which baby may have. The seeds of disease are often planted before baby is six hours old. The nurse declares he is hungry, and he is stuffed with sweetened

water, brandy and water, gin and water, cracker and water, milk and water, cat-nip tea and a score of other diabolical mixtures; and right here is the beginning of many cases of infantile diarrhœa or indigestion that may end fatally. The obstetrician has not finished his labor, and should not leave the house till he has given orders regarding diet for the infant in language that cannot be mistaken. The infant needs no food for twelve to eighteen hours after birth, and by that time nature has usually given a supply. How often shall baby be nursed? Not more frequently than once in three hours. Digestion only partly takes place in the stomach, and an interval of rest is required after the stomach is empty that repair may take place in the glands and they become ready to throw out a fresh supply of digestive fluid. It is a well known fact that the early secretion of the gastric fluid after the ingestion of a meal is mildly acid, and as digestion goes on the fluid becomes more acid. This is one of nature's wise economies as the faintly acid fluid does not harden the food. If then fresh milk is taken into the stomach while the last meal still remains there one of two things will result; either the fresh milk will meet with too much acid and be coagulated into a hard curd, or else the food nearly digested will be deprived of a sufficient supply of acid to complete digestion, by the throwing out of fresh gastric fluid of a less acid nature. In either case the ultimate result will be the same, and the mother will tell the doctor that baby is passing undigested curds of milk, and she cannot understand it, because he has had absolutely nothing but the breast. And that may be the truth. Time, then, between meals is a very important factor in the feeding of an infant.

Right here let me say something about water. An infant should have water to drink five or six times a day. A baby is not always hungry when it cries, more frequently it is thirsty and milk will not quench its thirst. A baby needs water, and a generous supply of it. I have more than once stopped a disordered condition of the stomach and bowels where either diarrhœa or constipation were pronounced symptoms by having the child fed regularly and not too often, and using a good supply of water, and that without any medicine.

But sometimes nature does not supply the expected food, and we must rely upon some substitute. What an array stares us in the face, and all claiming to be the best food, the only good food, good as mother's milk, a perfect substitute for it, etc., etc., *ad infinitum*.

There is no perfect substitute for mother's milk, the best is good cow's milk. The trouble we have with cow's milk is that the casein forms into harder and larger curds than that of human milk, which are soft and flaky. By some means these hard curds must be prevented from forming, and herein lies a great deal of the value of the many foods especially prepared for children. By a careful and proper admixture they break up the large, hard curds and render the milk more easily digested. Oat meal or barley water added to the milk often does as well. Condensed milk is not as good for the child from the large amount of sugar it contains, but often we are compelled to use it because the peculiar process of evaporation it has undergone, together with the presence of the sugar keep the curds small and soft. One cow's milk is often preferable if it can be secured. In large cities this is not possible; but the milk should come from cows that are allowed free pasture, plenty of water, and in the winter are given good food and well housed. The milk should be rapidly cooled as soon as drawn from the cow, and kept cool till prepared for the infant. It should also be kept as much as possible from contact with the air.

A good food being selected only a part of the work is done; regularity in feeding must be insisted upon, and as we now have a food not as rapidly digested as human milk, a longer interval should be required between feedings. And now the doctor meets the hardest battles he must fight to prevent sickness. Cleanliness is a thing fearfully neglected in the preparation of infant food. Bottles are not kept clean; after being used they are scalded out with hot water and that drives the milk into the glass, they should be first carefully rinsed with cold water, afterwards scalded; they are allowed to stand in the kitchen, nursery or sick room empty and uncorked, and so collect im-

purities and dirt, and all the smells of the contaminated air; they never see the sunshine, and become sour. A long tube is used and becomes a hot-bed for the breeding of tyrotoxon; nipples are not washed and turned inside out and washed again but are transferred from bottle to bottle; and the food is half mixed with the milk or not mixed at all, and given at any temperature from almost cold to being so hot the child can hardly take it. And then the milk is often kept in the same ice-chest in an open jar, with meat, and butter and vegetables, and it absorbs impurities from these with fearful rapidity—and the minister speaks of the mysterious workings of Providence that has taken the little one away from fond parents. I find that many mothers are willing to learn, and by instructing our patients on these points we may prevent a vast amount of suffering and save many infant lives. There is no reason why the mortality among infants should be so great; there is no reason why the dreaded second summer should haunt the mind of every fond mother; there is no reason why dentition should be attended with the great disturbance of the stomach and bowels that every physician is constantly meeting, except the reason that can be found in the improper care of the infant. Not only does this lie in the food; want of fresh air, want of proper clothing or being over-clothed are pregnant sources of trouble. But if the matter of food were attended to properly such causes as marasmus, inanition, indigestion, cholera infantum, diarrhoea and often convulsions would not be appended so frequently to the certificate of death. This is preventive medicine, the highest scientific, though perhaps not the most lucrative attainment of the physician. As the child grows older, and his diet naturally becomes more varied, great care must be exercised that he be not fed the food of adults too early or in too great variety. It is a safe and good rule to give in answer to the question, "how soon may baby eat?" by replying, give nothing but liquid food until he has ten teeth, and even then let the food be largely liquid.

Nervous diseases, especially convulsions, are frequently the outgrowth of other troubles. One third of all deaths that are

attributed to nervous causes, result from convulsions, and many of these, no doubt, should be credited to some irritation of the stomach and intestines. Many of these troubles, therefore, also come under the head of preventive diseases.

But one class is left for us to consider, namely, miscellaneous diseases, and here we have a heterogeneous collection, including heart and kidney complications, primary or secondary; miasmatic diseases, erysipelas, hemorrhage, violence, accidents and a number of more or less rare troubles. Altogether this class is responsible for five per cent. of the death rate.

Let us now concisely draw some conclusion from the foregoing facts, and in doing so we will take into account only the four principal classes, namely, contagious diseases, diseases of the respiratory and alimentary tracts, and of the nervous system, without pausing to argue the possibility of reducing the mortality from constitutional taints, miscellaneous causes or premature birth.

The statistics quoted show infantile death rate from contagious diseases 14 per cent., respiratory diseases 17 per cent., digestive diseases 34 per cent. and nervous diseases 18 per cent., making a total of 83 per cent. In Atlantic City the death rate from contagious diseases is 3.5 per cent., respiratory 12 per cent., alimentary 26 per cent., and nervous diseases 14.5 per cent., making a total of 56 per cent. This is  $33\frac{1}{2}$  per cent. less than the general average; and even this is hardly a just comparison, for we have hundreds of children coming here every summer suffering with some acute or subacute disorder of the stomach and intestines, till our percentage of sick children during the months of June, July, August and September is far above that of any other city of the United States, and still our death rate is one-third below. Figures do not show the grand result; only you physicians who have seen the effect upon your patients can form a correct idea of the advantage of a pure atmosphere. And here let me say that mountain air is, often as efficacious as salt air, but the little patient is subject there to greater diurnal changes in temperature than at the sea shore, besides losing that tonic effect of salt air which so effectually stimu-

lates the fagged-out nerve force, promoting healthy, normal assimilation. This reduction of  $33\frac{1}{3}$  per cent. is due purely to atmospheric influence. What, therefore, may be asked, would be the result were proper hygiene in regard to diet and clothing observed? Is it too much to assert that at least fifty per cent. of the infants that now die, die unnecessarily?

A theory may look well upon paper which a busy physician finds impossible to put into practice. I am well aware of the fact that a large majority of infants suffering from these disorders cannot secure a change of climate, but they can be surrounded by cleanliness. I contend that the best time to treat diarrhoeal disorders in infants is before the disease attacks the child; in other words, keep the child's digestion in such condition by suitable and well-prepared food, given in a proper manner, that there will be no soil for these diseases to grow upon, and that a few hot days and nights may be passed in safety. It appears to me that this is practicable. I believe the physician should be as careful in prescribing food and other hygienic measures as he is in selecting his remedy, for oft-times these simple, though vital means are of far more value than even a well-selected prescription. We are the legitimate educators of the public; through us, and through us alone must the masses learn the laws of hygiene; and if we are careless in instructing, is it a wonder that they are careless in learning? Just as soon as we as a profession awake to the enormous infantile mortality which every year is entered upon our records, and come to realize there is no necessity for it; just so soon as we begin to stir ourselves, so soon will the masses begin to think and act. One reason we are not awake to this matter is the lack of fuller and better reports from our bureaux of vital statistics and boards of health. Too often ignorant men control these matters. In writing, a few weeks ago to a commissioner of public health of one of our sister cities, I touched on this subject, and in reply he said, "I am called by the politicians a crank and a fool, with an emphatic adjective attached, for de-iring to issue more complete reports." How, I would ask, are we physicians to know of these matters except through our published reports; and have we not a right to demand that they be full and complete, and compiled by competent men? We have grown so accustomed to the little coffin and white crape upon the door, that we almost feel as if this was one of the sad things in life to which we must bow without redress. But it is not so; this high rate of infantile mortality can be, and should be reduced.



